Título: Using assistive robots to promote inclusive Education

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To cite this article: P. Encarnação, T. Leite, C. Nunes, M. Nunes da Ponte, K. Adams, A. Cook, A. Caiado, J. Pereira, G. Piedade & M. Ribeiro (2016): Using assistive robots to promote inclusive education, Disability and Rehabilitation: Assistive Technology, DOI: 10.3109/17483107.2016.1167970

To link to this article: http://dx.doi.org/10.3109/17483107.2016.1167970

ABSTRACT

Purpose: This paper describes the development and test of physical and virtual integrated augmentative manipulation and communication assistive technologies (IAMCATs) that enable children with motor and speech impairments to manipulate educational items by controlling a robot with a gripper, while communicating through a speech generating device.

Method: Nine children with disabilities, nine regular and nine special education teachers participated in the study. Teachers adapted academic activities so they could also be performed by the children with disabilities using the IAMCAT. An inductive content analysis of the teachers' interviews before and after the intervention was performed.

Results: Teachers considered the IAMCAT to be a useful resource that can be integrated into the regular class dynamics respecting their curricular planning. It had a positive impact on children with disabilities and on the educational community. However, teachers pointed out the difficulties in managing the class, even with another adult present, due to the extra time required by children with disabilities to complete the activities.

Conclusions: The developed assistive technologies enable children with disabilities to participate in academic activities but full inclusion would require another adult in class and strategies to deal with the additional time required by children to complete the activities.

IMPLICATIONS FOR REHABILITATION

- Integrated augmentative manipulation and communication assistive technologies are useful resources

to promote the participation of children with motor and speech impairments in classroom activities.

- Virtual tools, running on a computer screen, may be easier to use but further research is needed in order to evaluate its effectiveness when compared to physical tools.
- Full participation of children with motor and speech impairments in academic activities using these technologies requires another adult in class and adequate strategies to manage the extra time the child with disabilities may require to complete the activities.